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54 **Method and device for rust protection of vehicles.**

57 The present invention relates to a method and a device for applying a rust protection agent in a hollow space of a vehicle, whereby one, preferably at the production of the vehicle, introduces into each so called insert opening a spraying plug (1) adapted to each such insert opening and the hollow space behind, whereby the spraying plug (1) comprises one or more nozzles (2, 3) to provide for a

predetermined spraying picture and comprises a female part (7) adapted to a spraying gun (9) for receiving said spraying gun (9) whereupon spraying is carried out, the spraying gun is removed and the spraying plug is left in the insert opening.

The invention facilitates a simple and rational rust protection treatment both at the production stage and at the aftermarket stage.

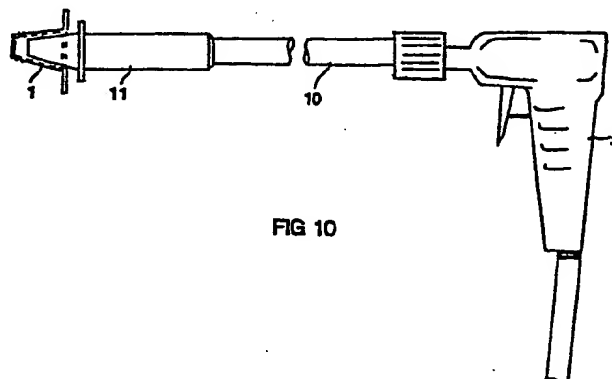


FIG 10

EP 0 089 326 A1

METHOD AND DEVICE FOR RUST PROTECTION OF VEHICLESDESCRIPTIONTechnical field

5 The present invention relates to a method as well as a device for applying a rust protection liquid in the hollow spaces of a vehicle for the protection thereof.

10 The object of the present invention is to obtain a possibility to obtain a so called protection treatment of a vehicle from a rust protection point of view in a simple and rational way as well as simultaneously obtaining a possibility to obtain an after-market treatment of the same vehicle with a rust protecting agent.

15 Background of the invention.

It is commonly known that very great values corrode away from our vehicles every year and then particularly from our trucks and cars. One has tried to prevent this by rust protecting the vehicles initially in the production stage, so called
20 production treatment, as well as rust protection treatments of the vehicles at certain time intervals, 1 to 2 years, when they have been in traffic or use, so called after-market treatment. The rust protection treatment is thereby carried out as a spraying of a rust protection agent using airless or air-
25 -mixed spraying. At airless spraying high pressures are used (4 to 5 MPa) for the distribution of the rust protection agent while in the latter case air is introduced to distribute the rust protection agent, wherebu a considerably lower pressure can be used (0.5 to 1.5 MPa). Rust protection treatment is
30 carried of open surfaces such as of the chassis and the undersides of the wings, whereby thich, often asphaltic based, high viscous rust protection agents are used, and if more closed spaces such as beams, doors, and the like are to be treated thinner, more penetrating rust protecting agents are used.

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Rust protection treatment of the open surfaces is, as understandable, easy to carry out using a simple, distributing nozzle, and the only thing one has to have in mind is to keep the surfaces to be treated to be kept dry and clean.

Rust protection treatment of the hollow spaces is, however, as understandable as well, more difficult to carry out. When treating at the production stage spraying is mainly carried out by means of rigidly applied nozzles. Hereby a great number of nozzles (20 to 40 pcs.) having different designs of the input part and the support part, which fits against the body. At the spraying the nozzle is fixed, i.e. is fixedly held. The one carrying out the spraying has to change and select the right nozzle from the collection of nozzles very often, connect the nozzle to a spraying gun, and bring the nozzle into a hole or an opening of the hollow space intended herefore and to move the nozzle to fixation, and to put the trigger. The nozzles are, however, provided with a rapid connector, so that an exchange can be easily made. However, the drawbacks are evident as the one carrying out the spraying continuously has to select and change nozzles. Further, the nozzles are deformed, and are worn out, and have to be changed as soon as the spraying picture has changed. When spraying has been carried out the openings have been covered with a plastic or rubber disc, which further increases the costs for the operation.

At the after-market treatment mobile nozzles are very often used, whereby the one carrying out the spraying has 3 to 5 nozzles to make a selection among. The nozzles have no fixing support either but are brought freely by hand in the spraying moment. The method is apparently uncertain and is highly dependent on the sprayer's skill, carefulness, and experience, i.e. of different types of cars. In many cars, further openings are to be made according to the so called ML-method, which openings, together with the prior, now uncovered ones, have to be reclosed by plastic or rubber discs.

Thus, one has requested that a simple and rational solution of these problems above shall be given, particularly as the costs for the after-market treatments have increased considerably, whereby the after-market treatments have been neglected causing increased rust damages as a consequence

Description of the present invention.

It has now surprisingly been shown possible to eliminate the above given drawbacks and problems by means of the present invention, whereby this is characterized in that one, preferably in the production stage, introduces in each so called insert opening one spraying plug being adapted to each such opening and its space situated there behind, whereby the spraying plug comprises one or more nozzles arranged to provide a predetermined spraying picture, and comprises a female part being adapted to a spraying gun for receiving such a gun, whereupon spraying is carried out, the spraying gun is removed and the spraying plug is left in the opening.

Further characteristics are evident from the accompanying claims.

It is evident that a number of spraying plugs have to be produced for each car model depending on the hollow spaces present behind. But the spraying plugs can be arranged in an early stage of the production process and thereby rationalize this; the sprayer need not select between different spraying nozzles but need only apply his spraying gun, and pull the trigger thereof in a predetermined number of seconds for applying a rust protection liquid; and need not apply any covering plastic or rubber disc.

At the after-market treatment a suitable spraying plug is already at hand and after a simple mechanical cleansing of its female part the rust protection treatment can be carried out.

It is also evident that in case no spraying plugs are present from the production stage, these can be arranged afterwards and can then remain in place for further later treatments.

In most cases the spraying plugs are manufactured of a plastic material, whereby only air-mixed spraying should be used, as the plastic material otherwise should be torn apart by the high spraying pressure used in airless spraying. The use of

air-mixed spraying causes on the other hand that the spraying equipment becomes more simple, secure, and easier to handle, whereby a car owner may self buy an equipment, and carry out his rust protection treatment of his vehicle.

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As the nozzles of the spraying plugs are open a certain air circulation is obtained in very closed hollow spaces, which is a good thing as condensed moist or moist air thereby can pass out.

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From the enclosed drawing some different types of spraying plugs are evident. Thus in Figs. 1 to 8 four different spraying plugs are shown seen from the side and from beneath, Fig. 9 shows a hollow space in cross-section with an applied 2-way spraying nozzle, and Fig. 10 shows a spraying plug with a spraying gun introduced therein.

15

In Figs. 1 to 2 a spraying plug having two diametrically, opposite to each other arranged nozzles is shown, which plug is used in a longitudinal beam for obtaining a longitudinal spraying. (Cf. Fig.9). The spraying plug thereby comprises on the one hand a conical body 1, which in its front, more narrow end is closed. In the vicinity of the front end two nozzles 2, and 3 are arranged, which are arranged diametrically opposite to each other. The spraying plug is in its rear, more broad end, provided with a collar 4, which is provided with a mark, not shown, showing the directions of the nozzles. The collar 4 is connected to the conical part 1 via a hollow moulding 5, which facilitates the spraying plug to be fixedly snapped onto an insert opening. The body 1 of the spraying plug is in its interior part provided with a conically hole 7. Also in this case the opening 6 of the collar 4 can have a somewhat smaller diameter than the opening diameter of the cone to provide for a locking of a tube therein in connection with a spraying.

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In Figs. 3 to 4 a spraying plug is shown having only one nozzle. Here the plug has been given a deeper form in order to

fit and act in a space intended therefor. The female part is, however, the same.

5 In Figs. 5 to 6 a spraying plug having a 180° -nozzle is shown, and in Figs. 7 to 8 a spraying plug having a nozzle opening in the longitudinal direction of the plug is shown.

10 In Fig. 9 a spraying plug according to Figs. 1 to 2 is shown after having been introduced in a beam 8, whereby the nozzles 2, 3 have been directed along the beam. To secure a correct direction of the nozzles the spraying plug has been provided with a direction mark on its collar 4.

15 It is shown in Fig. 10 on the one hand a spraying gun 9; on the other hand a tube 10 connected to the front end of the spraying gun 9, as well as an insert nozzle 11 connected to the other end of the tube 10 and having a male part adapted to the spraying plug.

20 It has been said above that the spraying plug is made out of a plastic material. It can, however, be made out of any other material, which is suitable for the purpose, such as certain metal alloys. One should bear in mind, however, to use such alloys that corrode away, if a galvanic element occurs, to
25 avoid corrosion of the vehicle.

In the case the spraying plug is to be used in a place where much dirt and moist appears, a covering disc can be arranged above the female part.

CLAIMS.

1. A method for applying a rust protection liquid in a hollow space of a vehicle for the corrosion protection of the latter, characterized in that one, preferably at the production stage
5 of the vehicle, introduces a spraying plug (1) into a so called insert opening, said plug being adapted to each such opening, and its hollow space present behind, whereby the plug comprises one or more nozzles (2,3) to give a predetermined spraying picture, and comprises a female part (7) adapted
10 to a spraying gun (9) to receive said spraying gun (9), whereupon spraying is carried out, the spraying gun is removed and the spraying plug is left in the insert opening.
2. A device for applying a rust protection liquid in a hollow
15 space of a vehicle, characterized in that it comprises a body (1) adapted to an insert opening of a hollow space of a vehicle, one or more nozzles (2,3) arranged in said body (1), a space (7) arranged in said body (1) to receive a spraying gun (9) or a part (11) thereof, and a collar (4) arranged to
20 said body(1) intended to keep said body in place.
3. A device according to claim 2, characterized in that the body (1) is connected to the collar (4) via a hollow moulding (5) which provides for a locking of the body (1)
25 to the insert opening.
4. A device according to claim 2, characterized in that the collar (4) is provided with an insert opening for receiving a spraying gun (9), whereby the opening has a smaller diameter
30 than the hollow space behind to provide a locking of a spraying gun introduced therein.

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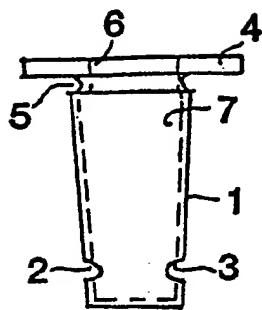


FIG 1

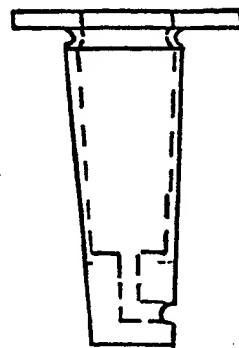


FIG 3

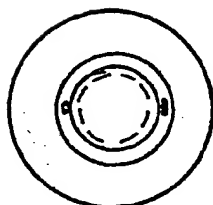


FIG 2

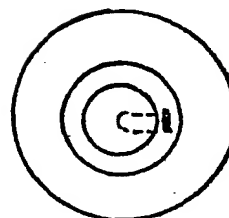


FIG 4

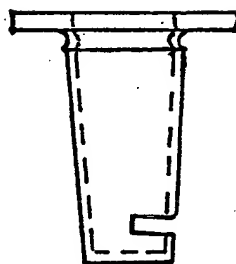


FIG 5

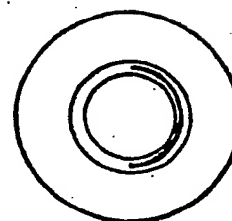


FIG 6

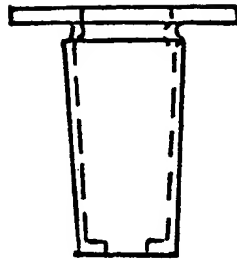


FIG 7

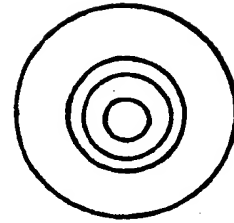


FIG 8

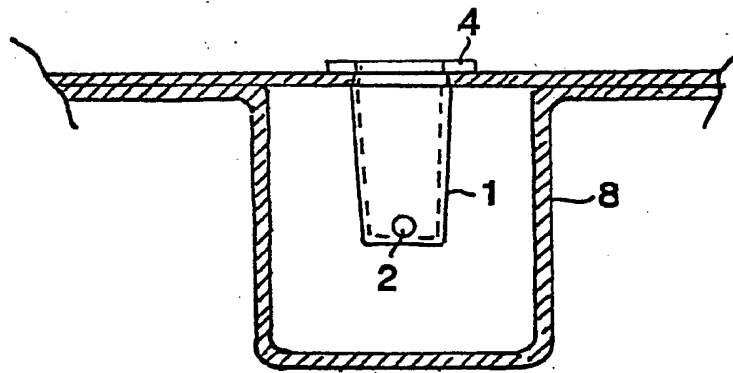
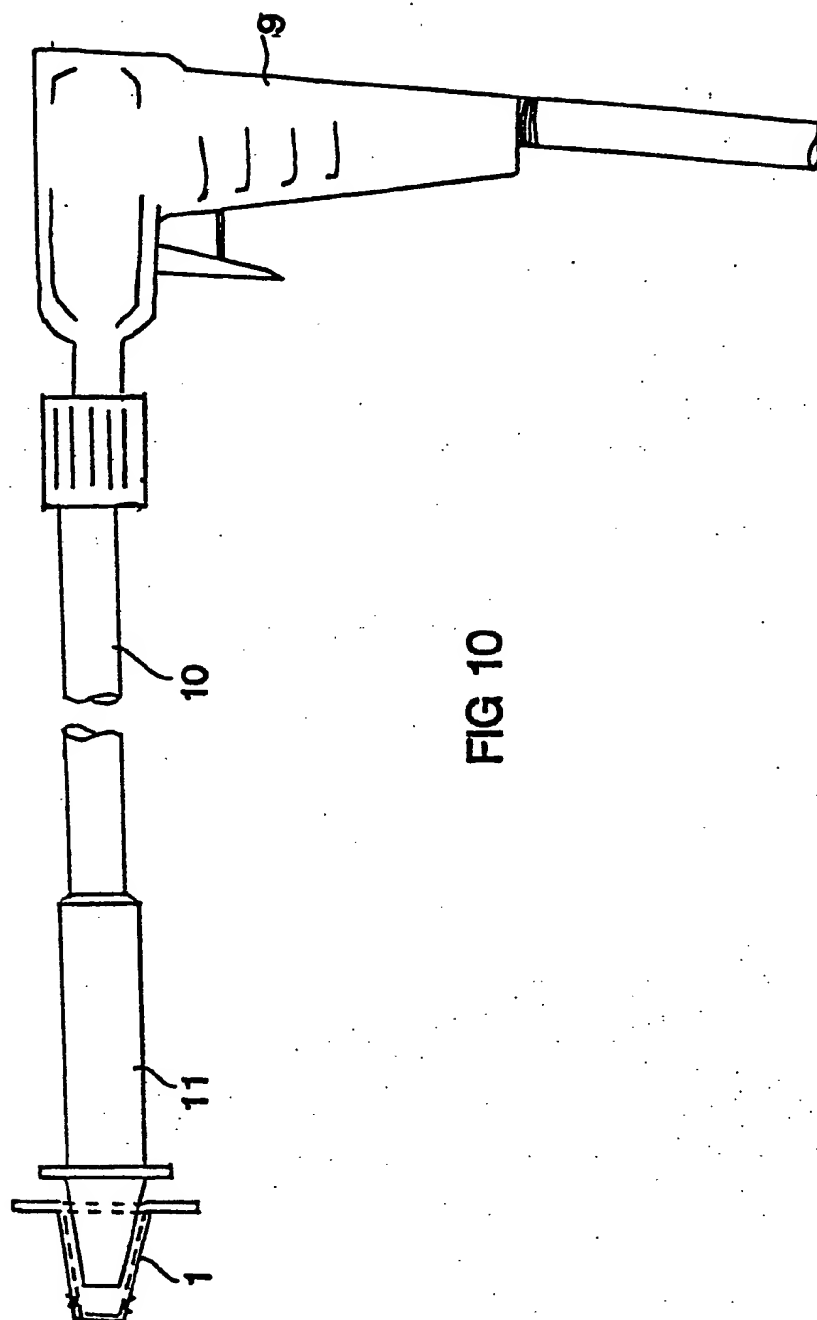


FIG 9

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European Patent
Office

EUROPEAN SEARCH REPORT

0089326
Application number

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | EP 83850062.7 |
|---|---|--|--|
| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int. Cl. 2) |
| A | <u>US - A - 3 202 363</u> (W.G. KAUTZ) -- | | B 60 S 5/00 B 05 D 7/14 |
| A | <u>US - A - 1 954 986</u> (C.V. CARLSON) ----- | | B 05 B 1/00 B 05 B 13/06 B 05 C 7/00 |
| | | | TECHNICAL FIELDS SEARCHED (Int. Cl. 2) |
| | | | B 60 S B 05 B B 05 C B 05 D |
| The present search report has been drawn up for all claims | | | |
| Place of search VIENNA | | Date of completion of the search 17-05-1983 | Examiner MELHARDT |
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